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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,995	07/22/2003	Ajith Prasad	P16481	8175
28062 7590 06/11/2007 BUCKLEY, MASCHOFF & TALWALKAR LLC 50 LOCUST AVENUE NEW CANAAN, CT 06840			EXAMINER CHERY, DADY	
			ART UNIT 2616	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/624,995	PRASAD ET AL.	
	Examiner	Art Unit	
	Dady Chery	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36-40 is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 13, 15-19, 21, 22, 24-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,2,3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Choudhury et al. (US Patent 5,541,912 hereinafter Choudhury).

Regarding claim 1, Choudhury discloses *a method of allocating a shared resource among a plurality of competing applicants* (Col. 1, lines 56- 60 and col. 2, lines 15 – 16)

limiting a share of the resource allocated to one of the applicants on the basis of a current proportion of the resource allocated to the one of the applicants and a total of respective shares of the resource currently allocated to all of the applicants (Abstract).

Choudhury discloses a method where a small amount of buffer is allocated to an active participant by equally share an available resource that is not allocating to any participants. This the same function as described by the instant application.

Regarding claim 2, Choudhury discloses *the shared resource is a packet storage memory in a data communication switch* (Col.1, lines 56 – 60);

and the competing applicants are input ports of the communication switch (Col. 2, lines 60 –61).

Regarding claim 3. Choudhury discloses *the share of the resource allocated to the one of the applicants is limited to a proportion of the resource which is equal to a proportion of the resource that is not currently allocated to any of the applicants* (abstract). Choudhury discloses a method where a small amount of buffer is allocated to an active participant by equally share an available resource that is not allocating to any participants. This the same function as described by the instant application

Regarding claim 4, Choudhury discloses a method where the share of the resource allocated to one of the applicant is to the product of constant α different than one time a proportion of the resource that is not currently allocated to any applicants (Col. 5, lines 3 – 25).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choudhury in the view of Yin (US Patent 6,219,728 hereinafter Yin).

Regarding claim 5, Choudhury discloses *a method of allocating a shared resource among a plurality of competing applicants* (Fig. 1), comprising:

Choudhury discloses a method where a portion of the available memory (i.e. not currently allocated to any of the competing applicants) is predetermine by a constant of proportionality (Col. 4, lines 28 – 33). Choudhury also discloses the portion of the shared resource currently allocated to the one of the competing applicants is at least as great as the product of shared resource that is not currently allocated to any of the competing applicants (Col. 5, lines 29 – 31).

Choudhury fails to teach foreclosing further allocation of the shared resource to one of the competing applicant.

However, Yin teaches a method for discarding packets in case there is no more additional space in the shared memory (Col. 5, lines 16 –38). Which is the same function as described by the instant application.

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to foreclosing further allocation of the shared resource when a proportion of the shared resource currently allocated to the one of the competing applicants is at least as great as the product of a constant K times a proportion of the shared resource that is not currently allocated to any of the competing for the purpose of providing an efficient utilization of memory resources and relatively uniform allocation of memory resources (Col. 2, lines 35 –36).

Regarding claim 6 Choudhury discloses the claimed invention except for $K=1$. It would have been an obvious matter of design choice to use $K=1$, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claim 7 Choudhury discloses the claimed invention except for K is selected from the group consisting of 2 and 0.5. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use K is selected from the group consisting of 2 and 0.5. , since it has been held that where the general

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conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 8, Choudhury discloses the shared resource is a packet storage memory in a data communication switch (Col.1, lines 56 – 60);

and the competing applicants are input ports of the communication switch (Col. 2, lines 60 –61).

7. Claims 9-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choudhury.

Regarding claims 9 and 12, Choudhury discloses a method comprising:

determining a proportion of a shared memory space currently allocated to a port of a data communication switch (Col.2, lines 16 –17). Maintaining a count of the length of the queue is considered as determining a proportion of a shared memory space currently allocated to a port of a data communication switch.

determining a proportion of the shared memory space that is not currently allocated to any port of the data communication switch (Col. 2, lines 20 – 28) ; Choudhury discloses a method for controlling the occupancy of the shared memory and determining the availability of the memory. Which is the same function as described by the instant application.

asserting flow control with respect to the first port if the proportion of the shared memory space currently allocated to the first port is not less than a quantity obtained by

performing a calculation with respect to the proportion of the shared memory space that is not currently allocated to any input port of the data communication switch (Col. 4, lines 21 – 37 and Col. 5, lines 4 –6)). Choudhury discloses a method to assert flow control to a port. The method asserts a function of the available buffer space to a port in the shared memory. The maximum permissible queue length is a fraction of the available memory, with a predetermined constant of proportionality α is considered as allocated to the first input port is not less than a quantity obtained by performing a calculation with respect to the proportion of the shared memory space that is not currently allocated to any port of the data communication switch.

Choudhury discloses the claimed invention except for the input port. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the input port, since it has been held that rearranging parts of an invention involved only routine skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Regarding claims 10 and 16, Choudhury discloses *the performing of the calculation includes multiplying the proportion of the shared memory space that is not currently allocated to any input port of the data communication switch by a constant K , $K \neq 1$* (Col. 4, lines 29 –31 and Col. 5, lines 4 –25). Where the calculation includes a constant α different than one that multiply by a proportion of the resource that is not currently allocated to any applicants.

Choudhury discloses the claimed invention except for the input port. It would have been obvious to one having ordinary skill in the art at the time the invention

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was made to use the input port, since it has been held that rearranging parts of an invention involved only routine skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Regarding claims 13, 19, 25, 28, 31, and 34, Choudhury discloses the claimed invention except for $K=1$. It would have been an obvious matter of design choice to use $K=1$, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claims 15, 18, 24, 27, 30 Choudhury discloses a *data communication switch* (Fig. 1 and Col. 3, lines 27 – 64), comprising:

a plurality of input ports (12);

a packet storage memory coupled to the plurality of input ports (20);

a control circuit (18) coupled to the plurality of input ports and the packet storage memory, the control circuit operative to (Col. 3, lines 55 – 64):

determining a proportion of a shared memory space currently allocated to a port of a data communication switch (Col. 2, lines 16 – 17). Maintaining a count of the length of the queue is considered as determining a proportion of a shared memory space currently allocated to a port of a data communication switch.

determining a proportion of the shared memory space that is not currently allocated to any port of the data communication switch (Col. 2, lines 20 – 28) ; Choudhury discloses a method for controlling the occupancy of the shared memory and determining the

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availability of the memory. Which is the same function as described by the instant application.

asserting flow control with respect to the first port if the proportion of the shared memory space currently allocated to the first port is not less than a quantity obtained by performing a calculation with respect to the proportion of the shared memory space that is not currently allocated to any input port of the data communication switch (Col. 4, lines 21 – 37 and Col. 5, lines 4 –6)). Choudhury discloses a method to assert flow control to a port. The method asserts a function of the available buffer space to a port in the shared memory. The maximum permissible queue length is a fraction of the available memory, with a predetermined constant of proportionality α is considered as allocated to the first input port is not less than a quantity obtained by performing a calculation with respect to the proportion of the shared memory space that is not currently allocated to any port of the data communication switch.

The input port counter (fig. 1, 26) is considered as the first means. The availability value (340) is considered as the second means. The Processor (18) is considered as the third means (Col. 3, lines 55 –64).

Choudhury discloses the claimed invention except for the input port. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the input port, since it has been held that rearranging parts of an invention involved only routine skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Regarding claims 17,26,29,32 and 35, Choudhury discloses the claimed invention except for K is selected from the group consisting of 2 and 0.5. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use K is selected from the group consisting of 2 and 0.5. , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 21. Choudhury discloses *the data communication switch of claim 18, wherein the control circuit is further operative to:*

determine a proportion of a group fraction of the packet storage memory that is not currently allocated to any input port of a group to which the first one of the input ports is assigned (Col. 2, lines 20 – 28 and Col.4, lines 29 -33) ; Choudhury discloses a method for controlling the occupancy of the shared memory and determining the availability of the memory. Which is the same function as described by the instant application.

assert flow control with respect to the first one of the input ports if the proportion of the shared region of the packet storage memory currently allocated to the first one of the input ports is not less than the product of a constant L times the proportion of the group fraction of the packet storage memory that is not currently allocated to any input port of the group to which the first one of the input ports is assigned (Col. 4, lines 21 – 37 and Col. 5, lines 4 –6). Choudhury discloses a method to assert flow control to a port. The method asserts a function of the available buffer space to a port in the shared memory.

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The maximum permissible queue length is a fraction of the available memory, with a predetermined constant of proportionality α is considered as allocated to the first input port is not less than a quantity obtained by performing a calculation with respect to the proportion of the shared memory space that is not currently allocated to any port of the data communication switch.

Choudhury discloses the claimed invention except for the input port. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the input port, since it has been held that rearranging parts of an invention involved only routine skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Regarding claim 22, Choudhury discloses a constant α that has the same function as K and L (Col. 5, lines 20 –25).

Regarding claim 33, Choudhury discloses an apparatus (Fig. 1), comprising:

a storage medium (20) having stored thereon instructions that when executed by a machine result in the following:

determining a proportion of a shared memory space currently allocated to a port of a data communication switch. (Col.2, lines 16 –17). Maintaining a count of the length of the queue is considered as determining a proportion of a shared memory space currently allocated to a port of a data communication switch.

determining a proportion of the shared memory space that is not currently allocated to any port of the data communication switch (Col. 2, lines 20 – 28) ; Choudhury discloses a method for controlling the occupancy of the shared memory and determining the

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availability of the memory. Which is the same function as described by the instant application.

asserting flow control with respect to the first port if the proportion of the shared memory space currently allocated to the first port is not less than a quantity obtained by performing a calculation with respect to the proportion of the shared memory space that is not currently allocated to any input port of the data communication switch (Col. 4, lines 21 – 37 and Col. 5, lines 4 –6)). Choudhury discloses a method to assert flow control to a port. The method asserts a function of the available buffer space to a port in the shared memory. The maximum permissible queue length is a fraction of the available memory, with a predetermined constant of proportionality α is considered as allocated to the first input port is not less than a quantity obtained by performing a calculation with respect to the proportion of the shared memory space that is not currently allocated to any port of the data communication switch.

Choudhury discloses the claimed invention except for the input port. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the input port, since it has been held that rearranging parts of an invention involved only routine skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Allowable Subject Matter

8. Claims 11,14,20 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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9. Claims 36 –40 are allowed.

10. The following is an examiner's statement of reasons for allowance: Choudhury teaches a buffer management for shared memory switches that includes a plurality of input and output port, an overflow control, a partition memory. Yin teaches a method and apparatus for allocating shared memory resources. The prior art of record does not, either singularly or in combination, disclose or suggest "allocate a portion of the overflow zone to the first one of the input ports in regard to at least one data packet received at the first one of the input ports at a time when flow control is asserted with respect to the first one of the input ports" as discloses by the instant application.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pashan et al. (US patent 5,233,606) discloses an arrangement for controlling shared-buffer-memory overflow in a multi-priority environment.

Mansour et al. (US Patent 7,139,280) discloses a buffer management policy for shared memory switches.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dady Chery whose telephone number is 571-270-1207. The examiner can normally be reached on Monday - Thursday 8 am - 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CHERs Dody. 06/05/07


RICKY Q. NGO
SUPERVISORY PATENT EXAMINER